Brookhaven National Laboratory 2007 Annual ISMS Effectiveness Review and Declaration

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Revision 0

Brookhaven Science Associates
U.S. Department of Energy

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I. Introduction

This report serves to document the fulfillment of Brookhaven Science Associates' (BSA) requirements to update and submit, for DOE approval, safety performance objectives, measures, and commitments. These requirements are established by the DEAR Clause 970.5223-1 in BSA's contract as follows:

- 970.5223-1 – Integration of Environment, Safety, and Health (ES&H) into Work Planning and Execution (e): *"On an annual basis, the contractor shall review and update, for DOE approval, its safety performance objectives, performance measures, and commitments consistent with and in response to DOE's program and budget execution guidance and direction. Resources shall be identified and allocated to meet the safety objectives and performance commitments as well as maintain the integrity of the entire system. Accordingly, the system shall be integrated with the contractor's business processes for work planning, budgeting, authorization, execution and change control."*

BSA meets the objectives to establish a DOE-approved Safety Management System to integrate Environment, Safety and Health (ES&H) into work planning and execution by implementing its Integrated Safety Management System (ISMS) Program Description. The Program Description was originally approved in 1999 and is updated and maintained as required.

The requirements to establish annual safety performance objectives, performance measures and commitments for DOE approval are fulfilled by the process to establish the fiscal year (FY) contract performance evaluation and measurement plan (PEMP) goals and objectives. The Laboratory's policy for implementing performance-based management includes the following guiding principles:

- ♦ Performance objectives are established in partnership with affected organizations and are directly aligned to the BSA/BNL Strategic Plan and Annual Laboratory Plan (ALP);
- ♦ Resource decisions and budget requests are tied to institutional risks and results; and
- ♦ Results are used for management information, establishing accountability, and driving long-term improvements

In addition to goals and objectives detailed in the FY PEMP, BSA/BNL develops safety performance objectives, performance measures, initiatives and commitments that originate from the Operations Business Planning process. The FY Support Organizations' Business Plan presents the performance objectives, measures and targets BSA/BNL will undertake in the upcoming FY.

The operations business planning process is continuous during the fiscal year consisting of a series of monthly and tri-annual reviews (e.g., BSA Risk Committee

reviews, monthly project and financial reviews, tri-annual PEMP and Management System reviews), various structured feedback meetings (ES&H Coordinators, Building and Work Control Managers' meetings, Management Work Observations), and out briefings and reports of specific investigations, reviews, appraisals and assessments. A stream of performance measurement data beyond those associated with the PEMP is also analyzed throughout the year by Operations support organizations. Finally, data associated with the Events and Issues Management process (ORPS, SCBNL, Causal Analyses, and Lessons-Learned) are reviewed and trended.

On an ongoing basis, these inputs are analyzed by the appropriate operations line managers and management system stewards to determine if immediate corrective actions are indicated or further assessment/analysis is needed to better understand a potential problem before taking action. Follow-on actions are taken as appropriate.

At the year-end the above inputs and status of actions taken and planned are rolled-up for further analysis and for input to support organization Business Plans, and establishes the annual ISMS effectiveness review process.

Two of the most significant end-of-year inputs are the BSA Corporate Assurance Process and the Laboratory's Self-Evaluation of performance against targets established in the PEMP for the FY. These inputs represent performance areas that are important to the BSA Board of Directors and the customer, the DOE Office of Science.

The two key assessments mentioned above are combined with the continuous performance assessment data at year-end, and a roll-up and analysis are performed by Operations senior management. Results are prioritized and communicated to Laboratory senior management as well as other input for the development of the Support Organizations' Business Plan for the FY. Follow-on actions identified in the Business Plan are flowed down to operation organizations and into the goals of the direct reports to the Deputy Director for Operations and the cycle begins again for the coming FY. Section III details the ES&H objectives, measures and commitments for the FY.

II. FY 2007 ISMS Performance Summary and Declaration

A. ISMS Performance Summary

The BSA/BNL ISMS continues to be a well-designed program for accomplishing work in a manner that protects workers, the public and environment. This is substantiated by a number of indicators, performance analyses and data trending, and comparisons with DOE multi purpose Laboratory accident and illness rates. BSA/BNL has consistently sought to improve its safety performance by conveying "zero injuries" as achievable and that has become the Laboratory's primary safety objective.

In FY07, BNL made significant progress in its planning and performance monitoring. The strategic plan was updated, and the first-ever ALP was developed. The ALP fully serves as the Laboratory's annual management agenda, and is built on the Strategic

Focus Area (SFA) framework formulated in FY06. This framework effectively balances priorities across six focus areas: Science, Human Capital, Infrastructure, Cost and Quality of Business, Excellence in ESS&H, and Stakeholder Relations. The ALP is central to BNL's overall planning hierarchy. It afforded a valuable framework for decisions on institutional-level ES&H funding requests in FY07, as well as for driving science planning (e.g., R & D on energy, and on advanced radiation detectors) along with the execution of science projects, including the prioritization of investments in LDRD, Program Development, and Royalty Income. The ALP also is the basis for operations business planning and annual performance goals for Level-0 and Level-1 managers.

The on-going development and implementation (per BNL's ISM/Safety Improvement Project Plan) of BNL's planning system successfully corrected and improved upon five PAAA-reportable ISM core function weaknesses in Feedback and Improvement identified in the FY2006 ISM Readiness Review. Three reviews conducted this year validated the concept of the Annual Laboratory Plan, the SFA framework, the reporting structure, the planning calendar, and the conceptual basis and guidance for organizational unit business planning. These reviews were (1) an ISM Readiness Review, (2) a DOE/BHSO third-party review of BNL's DOE Order 226.1 Contractor Assurance system, and, (3) the DOE HS-64 ES&H Evaluation (Integrated Safety Management) review. Each evaluation commented positively on the Laboratory's maturing system for planning and reporting, noting improvements to the developing system. As the planning system still is being deployed, the remaining elements include extending business planning to all Level-1 and Level-2 managers in FY2008.

The Laboratory continues to improve on ISMS implementation. This was evident in the results of the DOE's HS-64 Inspection of the Laboratory's ES&H programs. Overall results indicate performance is effective in several areas. This Review Team also stated that senior management's commitment to safety is apparent in the efforts for institutional improvement, and most observed activities were conducted in a safe manner utilizing mature processes. However, they cited the need for improvement in requirements management and implementation of hazard control areas.

Also of note is that the Third Party team conducting the Evaluation of the Contractor Assurance Program at BNL found that injury investigation is weak: investigators are not adequately trained, causes are not properly identified, and corrective actions may be insufficient to prevent recurrence. The DOE HS-64 Inspection reiterated the Third Party results, "BNL has not implemented a rigorous and effective program of injury and illness investigations that consistently documents and evaluates conditions and causes and establishes appropriate corrective and preventive actions."

The Laboratory implemented a safety observation program for which the Laboratory Director stated the expectations for Level 1, 2, and 3 managers. Expectations on how to carry out work observations also was included the Work Planning and Control Management System subject area. Training for managers was provided, which included expectations for the documentation and quality of field observations. Tracking

and trending of observation results was accomplished at the institutional level, and significant improvements are underway to address feedback from the departments/divisions on tracking and trending at that level.

Members of senior management intensified their efforts in Safety Leadership in FY07 by deploying the DuPont Safety Observation Training, the STOP Program, developing a laboratory-wide Human Performance Initiative strategy, and executing the ISM Safety Improvement Initiative Project. They were commended by the DOE's HS-64 Review Team for effectively using a structured project-management approach to implementing corrective actions in the FY2006 ISM Readiness Review, and for their leadership on compliance with safety controls. These accolades notwithstanding, the DART and TRC rates increased during FY07. An analysis of the cases indicates that formal work-planning does not appear to be a cause of the rise. The Laboratory Director responded to this situation with a request for an analysis of the cases and the development of specific actions and improvements (for the institution, and specific ones for departments/divisions). Many of these now are underway, including improvements in the process of investigating accidents/incidents (including their causal analysis), and the implementation of a Human Performance Initiative.

BSA/BNL did not meet the Targets for either DART or TRC for FY 2007; more cases were reported for both metrics than in FY 2006. An analysis of injuries shows a significant increase in recordable and DART cases for bargaining-unit employees and, correspondingly, a slight increase for non-union employees compared to FY 2006. The types of activities resulting in injuries are similar to those that employees engage in at home. Inadequate formal work planning does not appear to be a contributing factor in almost all cases.

BSA remains strongly dissatisfied with progress in the Laboratory's worker safety performance. The Risk Committee applauds BNL's decision to arrange a new route toward understanding employees' attitudes via "stream analysis"; such processes hold promise in mapping and matching causal factors with operations, and assessing progress in realizing the bargaining unit's engagement with operational issues. The early results indicate the building of a common view of personal safety between BNL and the bargaining units' leadership. Continued focus on establishing a culture of safe operation is critical to achieving BSA's goals.

BNL has identified both strengths and weaknesses in its safety programs stemming from FY07 events and assessments. Most notable among those are as follows:

<u>ISMS Attributes and Program Improvements</u>

- ♦ BNL Managers at all levels are fully engaged in promoting safety programs and improving performance.
- ♦ Improved Performance Analysis processes by implementing management system-based corporate assurance, operations integrated assessment and tr-annual performance reporting processes. PB Views web-based monitoring tool

is used to provide real-time performance analysis of management systems and PEMP performance goals.

- Human performance training was provided to Facilities and Operations, Property and Procurement Management and the Collider-Accelerator Department. BNL also integrated human performance principles into work planning and control procedures.
- Developed an Annual Laboratory Plan (ALP). The ALP is central to BNL's overall planning hierarchy and balancing priorities across Laboratory SFAs.
- Implemented an enhanced Web-Requisition and site visitor access ISM Flowdown process for subcontractors, suppliers, and vendors.
- Trained and qualified approximately 100 BNL staff in barrier analysis and causal analysis techniques.
- Implemented a Safety Management Leadership and Observation program for Level I, Level II and Level III Managers.
- Rolled out a web-based requirements management verification process.
- Rolled out a three tiered Work Planning and Control management process that includes human performance principles was rolled-out to strengthen and enhance task-level analysis and work planning and to create a culture where "All Work is Planned".
- Established selection, training and qualification requirements for Work Control Managers and Coordinators.
- BNL became the first DOE National Laboratory certified to the revised International Standards Organization (ISO) 14001: 2004 Environmental Management System (EMS) Standard, December 2006.
- BNL became the first DOE National Laboratory certified to the Occupational Health and Safety Assessment Series (OHSAS) 18001 Standard, December 2006.

<u>ISMS Areas for Improvement</u>

- Facility Safety
  - The Gap Analysis for 10 CFR 851 revealed that compliance gaps identified for several of the functional areas exist, and that corrective action plans need to be developed, approved, and resource loaded.
  - Several of the Laboratory's Authorization Basis Documents (ABDs) were outdated and in need of revision. Extent of condition and causal analyses for ABDs and nuclear safety management is required.
- Integrated Assessment Program
  - The requirements for self-assessments and external assessments need to be better integrated across line organizations and the institution to avoid duplication of assessment efforts.
  - Injury and illness investigations need to consistently evaluate conditions and causes, and establish appropriate corrective and preventive actions.
- Work Planning and Control

  - Expectations of the work planning and the Job/Facility Risk Assessments have not been consistently implemented and understood by personnel conducting work planning.
  - Operations work planning and control relies heavily upon "skill of the worker" without having adequate mechanisms to ensure that the individuals relied upon to make key decisions have the appropriate knowledge.
  - Several management systems were identified as having overlapping/inconsistent hazard identification/mitigation processes.
- Worker Safety and Health
  - BSA/BNL did not meet performance goals for either DART [1.03 (26 cases)] or TRC [1.86 (47 cases)] for FY07. More cases were reported for both metrics than in FY06 and for FY2005. An analysis of injuries shows a significant increase in Recordable (42%) and DART (111%) cases for bargaining unit employees and a slight increase in Recordable (21%) and DART (40%) cases for non-union employees when compared to FY06. The types of activities resulting in injuries are similar to those that employees would engage in at home (using hand tools, tripping, contusions, abrasions, strains). Inadequate work planning does not appear to be a major contributing factor in the majority of the cases. BSA conducted a study and developed a white paper on injury reduction that identifies actions for improvement, of which several were targeted to specific BNL organizations as well as some for improving accident prevention across the Laboratory. Many of these actions are either completed or well underway.
  - Injury and illness investigations need to consistently evaluate conditions and causes, and establish appropriate corrective and preventive actions.

B. ISMS Declaration

BSA/BNL completed a comprehensive FY 07 Year-End review of the FY07 Operations Business Plan. The review included evaluations of operations-level and management system activities, corrective actions from assessments and other feedback, and continuous improvement and follow on activities. Based on this year end review, BSA/BNL declares that its ISMS is effectively implemented at the institutional, facility- and activity-levels.

Also of note, the DOE's Office Environment, Safety, and Health (ES&H) evaluations (HS-64), within the Office of Health, Safety and Security (HSS) completed a comprehensive review and inspection of ES&H program implementation at BSA/BNL ("HSS Inspection"). The DOE HS-64 inspection team concluded in their report "Inspection of ES&H Programs at BNL" ("HSS Report, November 2007) that BSA/BNL effectively implements the ISMS requirements as required by DOE Manual 450.4-1, *Integrated Safety Management System Manual* and significant improvement was evident in all areas reviewed since the 1999 HSS ES&H inspection of BNL programs. However, further work is needed in core functions (CF) 3 - Develop and Implement

Hazard Controls, CF 4 –Perform Work within Controls, and CF 5 - Feedback and Improvement.

Subsequent to the DOE HS-64 inspection, BSA/BNL developed a comprehensive, holistic, and sustainable plan for improvement that serves as the centerpiece for performance improvement for Brookhaven National Laboratory (BNL). This plan, entitled, “BSA ISM/Safety Improvement Project Plan,” is responsive to the findings of multiple internal and external assessments of the implementation of BSA’s ISMS program. The corrective actions to address findings in the HSS report will be incorporated into the ISM/Safety Improvement Project Plan.

The ISM/Safety Improvement Project Plan (see appendix A) is updated and revised periodically as new information becomes available and as major actions are completed. As such, the plan is a living document and will serve as the key document that describes the current status of ISMS implementation and improvement. The plan is linked to BNL’s strategic objectives and refined and updated to reflect BNL’s institutional objectives and goals.

III. Environment, Safety and Health objectives, measures and commitments

A. Annual Laboratory Plan (ALP) Support Activities

Strategic Focus Area (SFA)	Objective	Target	FY08 PEMP	Directorate Target / Activity	Responsible Division
Advancing the Frontiers of Science and Technology	NSLS II Site Readiness	▪ Construct new warehouse facility and demolish existing structures ▪ Construct addition to central chill water facility ▪ Renovate east laboratories building 703	2.1, 2.2	1. Provide construction safety support 2. Perform design review 3. Secure agreement with NYSDEC on NSLS stormwater management and obtain necessary permits. 4. Radiological engineering support. 5. Provide site environmental / readiness support.	SHSD/RCD EWMSD
	Nanoscience Program stakeholder relations	Engage the community in the Laboratory's nanoscience research efforts and goals of the CFN, including ES&H.	3.3, 4.1	1. Perform Operational Readiness Evaluation (ORE) 2. Manage environmental issues (air emissions and liquid effluents) 3. Support stakeholder outreach and ES&H communication efforts	SHSD/EWMSD
	Execute Mid-term plan for RHIC detector and luminosity upgrades	Secure CD-O for luminosity upgrade project – evaluate whether transverse stochastic cooling will be satisfactory	2.3, 7.1	1. Perform design review 2. Provide radiological engineering support 3. Transition Tandem Van Der Graaff to excess.	SHSD/RCD
	Acquire and operate Blue/Gene/L	▪ Construct space and provide additional utility capacity for computing facilities ▪ Install Blue Gene/L at BNL	2.4, 7.2	1. Perform design review for construction and facility additions. 2. Obtain environmental permit for a 2nd generator. 3. Perform ORE.	SHSD/EWMSD

Strategic Focus Area (SFA)	Objective	Target	FY08 PEMP	Directorate Target / Activity	Responsible Division
Attracting and Sustaining Top Talent	Effective and efficient recruitment of Strategic Hires	Resource loaded strategic hire list developed and executed	6.3	1. Hire an Assistant Laboratory Director for the ES&H Directorate.	Deputy Director for Operations (DDO)
Modernizing the Laboratory Infrastructure	Complete the Research Support Building (RSB) Project	Demolish Building 134 (partial) and Building 475	2.2	1. Provide construction safety support. 2. Provide work planning and control oversight and support.	SHSD
	Phase 1 – Lab Renovations	Obtain CD-2 and CD-3 for science lab renovation and incorporate LEED criteria into renovation.	2.2	1. Perform design review. 2. Perform ORE 3. Provide work planning and control oversight and support.	SHSD
	Science Laboratory Infrastructure (SLI) Initiative	Obtain CD-1 for interdisciplinary support building obtain CD-0 for science Laboratory renovation	7.1, 7.2	1. Provide support for Interdisciplinary Support Building (ISB), including conceptual design review support.	SHSD
Improving the Quality and Reducing the Cost of Doing Business	Meet DOE Transformational Energy Action Management (TEAM) Initiative "Portfolio" Goals	Develop & implement a strategy to significantly reduce energy intensity and water usage.	7.1, 7.2	1. Provide water conservation guidance and support.	EWMSD
Achieving Excellence in ESS&H	Revitalize the Integrated Safety Management (ISM) at BNL	▪ Execute ISM/Safety Improvement Project Plan ▪ Develop corrective action plan (CAP) for the ISM review report findings. Incorporate into the ISM/Safety	5.1, 5.2	1. Provide subject matter expert support to the ISM Project Manager 2. Develop and submit ISM CAP to BHSO within 60 days of the final report release. 3. Provide support for the arc-flash CAP. 4. *See 10CFR851 activity table 5.3*	All BNL Organizations

Strategic Focus Area (SFA)	Objective	Target	FY08 PEMP	Directorate Target / Activity	Responsible Division
		improvement plan ▪ Complete Arc-flash CAP ▪ Develop the CAP for the worker safety & health programs required by 10CFR851.			
Achieving Excellence in ESS&H	Transition BNL to a culture of injury prevention	▪ Develop trending, analysis and reporting process for the safety observation program for level 1, 2 and 3 managers. ▪ Develop and implement Human Performance Initiative (HPI) Strategy and stakeholder engagement plan	5.1, 5.2	1. Provide support to the Quality Management Office (QMO) 2. Provide staff to be trained and support the HPI implementation project.	All BNL Organizations
		▪ Well-being 24/7 Initiative ***(Proposed New Target)***		1. Develop and communicate the Well Being 24/7 initiative to Laboratory senior management. 2. Implement the Well Being 24/7 initiative.	
	Emergency Preparedness – achieve and sustain full compliance with DOE order 151.1	▪ Complete the Emergency Management Project Plan ▪ Complete required Emergency Planning Hazards Assessments (EPHA)	8.1	1. Provide support for completion of EPHAs.	All BNL Organizations

Strategic Focus Area (SFA)	Objective	Target	FY08 PEMP	Directorate Target / Activity	Responsible Division
	Upgrade, verify and sustain facility authorization basis documents and associated management processes	▪ Develop and implement a Facility Safety Improvement Plan ▪ Obtain DOE approval for downgrading the Waste Management Facility	5.3	1. Form a new organization for documentation analysis. 2. Support the development of the institutions Facility Safety Improvement Plan 3. Process and ship nuclear materials to reduce inventory below hazard category 3 levels. 4. Create a revised facility safety basis documentation for approval by the Lab ES&H committee	DDO EWMSD
Achieving Excellence in ESS&H	D&D of the Brookhaven Graphite Research Reactor (BGRR)	▪ Obtain CD-2/3, initiate graphite removal.	5.3	1. Provide waste management support to enable the Environmental Restoration Projects (ERP) shipment milestones, including beam plugs, graphite and bioshield components. 2. Provide radiological support for D&D operations	EWMSD/RCD
	D&D of the High Flux Beam Reactor (HFBR)	▪ Obtain CD, as required. Ship control rod blades	5.3	1. Provide waste management support to enable the Environmental Restoration Projects (ERP) shipment milestones, including HFBR control rod blades. 2. Provide radiological support for D&D operations.	EWMSD/RCD

B. DOE Performance and Evaluation Measurement Plan (PEMP) Support Activities

Performance Goal	Measure	Directorate Activities	PEMP Driver	Responsible Manager
4.0 Provide sound and competent leadership and stewardship of the Laboratory	BSA will deliver and implement an effective integrated strategy to sustain the viability of BNL as a leading scientific institution into the foreseeable future.	Provide support for managing the laboratory's strategic agenda by implementing the ES&H Directorate Business Plan.	Target 4.1.1.1	M. Bebon
	Corporate Leadership – BSA is responsible and accountable for Laboratory performance.	Support corporate leadership by providing effective stewardship and accountability of Laboratory assets, operations, systems, and managers.	Target 4.2.1.1	All BNL Organizations
5.0 Sustain Excellence and Enhance Effectiveness of Integrated Safety, Health, and Environmental Protection	BSA will demonstrate progress in achieving and maintaining "best in class" safety and health performance.	1. Reduce DART Rate to less than0.25 2. Reduce TRC rate of 0.65 3. Provide staff to be trained and support the HPI implementation project. 4. Establish a reporting culture by enhancing and improving on the feedback and improvement processes	Targets 5.1.1.1, 5.1.1.2, 5.1.1.3	All BNL Organizations
	BSA will implement, maintain, and continually improve an integrated safety management system that clearly states environmental and occupational health and safety (ES&H) policies, programs, and objectives appropriate for BNL Operations.	1. Perform an effectiveness review of the three tiered Work Planning and Control process. 2. Develop ISM program effectiveness measures and incorporate into the ISM annual ISM Declaration by March 2008. 3. Develop a FY08 Site Collective Dose Goal and maintain exposure ± 10% of that goal. 4. Demonstrate effectiveness with the safety observation program by meeting established work observation goals.	Targets 5.2.1.1, 5.2.1.2, 5.2.1.3, 5.2.1.4 and 5.2.1.5	S. Coleman C. Schaefer P. Williams

Performance Goal	Measure	Directorate Activities	PEMP Driver	Responsible Manager
	ISO 14001 EMS and OHSAS 18001 Certification – BSA has acquired and maintained third-party certifications for the Environmental Management and Occupational Safety and Health Management Systems.	1. Maintain certification of the Environmental Management System to the ISO 14001:2004 standard as determined by the third party audit. 2. Maintain registration in OHSAS 18001 standard.	Target 5.2.2.1 & 5.2.2.2	G. Goode P. Williams
	BSA will demonstrate that it has effective processes in place for sustaining and enhancing Waste Management, Minimization, and Pollution Prevention.	1. Develop and implement a plan to make the Pollution Prevention program sustainable. 2. Continue progress with disposition of nuclear materials, legacy waste, excess materials and chemicals, and environmental projects including disposition of all excess U-233, with a goal of an overall reduction of the excess material footprint at BNL. A prioritized disposition plan will be submitted to BHSO by the end of 1Q 2008. 3. Perform a gap analysis against Executive Order 13423, "Strengthening Federal Environmental, Energy and Transportation Management" and develop baselines for performance measurement.	Target 5.3.1.1, 5.3.1.2 & 5.3.1.3	G. Goode M. Bebon
6.0 Deliver efficient, effective, and responsive Business Systems and Resources that Enable the Successful Achievement of Laboratory Missions	BSA will demonstrate that it has an effective Contractor Assurance System. Factors to be considered include Causal analysis, event and issues management corrective action effectiveness and assessment tracking processes.	1. Provide support and subject matter expertise in completing corrective actions identified from the FY07 review of the Contractor Assurance System 2. Provide support and subject matter expertise in analyzing SCBNL events and issues from surveillances and assessments	Target 6.4.1.1 & 6.4.1.2	All BNL Organizations

Performance Goal	Measure	Directorate Activities	PEMP Driver	Responsible Manager
7.0 Sustain excellence in operating, maintaining, and renewing the facility and infrastructure portfolio to meet Laboratory needs	The management of real property assets to maintain effective operational safety, worker health, environmental protection and compliance, property preservation, and cost effectiveness, while meeting program missions, through effective facility utilization, maintenance and budget execution.	1. Provide effective utilization of the BNL Project, Planning, Programming and Budgeting Process (3PBP) project tracking and prioritization process for safety, environmental and waste management processes. 2. Provide input for the consolidated unfunded requirements list (CURL) in a timely manner.	Target 7.1.1.1	G. Goode, P. Williams, C. Schaefer
8.0 Sustain and enhance the effectiveness of integrated safeguards and security management (ISSM) and Emergency Management Systems	BSA will implement and maintain an emergency management program in a state of readiness.	1. Provide support and subject matter expertise needed to complete survey of hazards (chemical and radiological) and preparing and maintaining EPHAs.	Targets 8.1.1.1 & 8.1.1.2	P. Williams, C. Schaefer

Appendix A
Integrated Safety Management/ Safety Improvement Project Plan